

# VIA Green Computing

## For a Cleaner World

As the number of people using ICTs grows, so does the impact on our environment. Through the Green Computing Initiative, VIA is leading the way with tangible, innovative ways to address this issue head on, developing a comprehensive range of sustainable, environmentally and technologically advanced x86 processor platforms that boast cutting edge power efficiency and manufacturing techniques, and introducing new, appropriate ways of utilizing them around the world.

The VIA Green Computing Initiative encompasses five ground-breaking computing strategies, each aimed at highlighting different aspects of environmental responsibility:

- VIA Carbon Free Computing
- VIA Solar Computing
- VIA Quiet Computing
- VIA Energy Efficient Computing
- VIA RoHS/Lead-Free



These strategies form a far-reaching approach to sustainable computing that involves a wide range of activities, from promoting a better working environment to contributing towards the development of forests and other natural habitats.

VIA launched the world's first Carbon Free processor in 2006, a powerful yet highly efficient processor that minimizes CO<sub>2</sub> production and guarantees the offset of that production through a range of environmentally sustainable options; VIA is also spearheading the use of clean energy sources such as solar power, which helps address both environmental as well as international development issues. VIA was one of the first IT companies to achieve RoHS (Restriction of Hazardous Substances) compliance, standards initiated in the EU but since expanded into global markets; additionally, VIA remains a world leader in quiet computing through an acclaimed range of small form factor mainboards and ultra low power platforms that enable completely fanless designs, and we continue to forge ahead into new sustainable areas through our R&D.

By providing an unmatched range of highly efficient, affordable and innovative computing platforms that work together with and complement existing infrastructures such as power grids and distribution channels, VIA strives to educate markets about the benefits of Clean Computing for the environment, productivity and the overall user experience.

### VIA RoHS/Lead-Free



VIA recognized early on the importance of reducing hazardous substances at the silicon level, and spearheaded the drive towards lead-free x86 processor platforms, being first to market with RoHS-compliant processors as early as 2003, with implementation of RoHS-compliant production capability across the entire VIA product portfolio completed in 2005.

With the new challenge presented by forward thinking EU directives such as the Restriction of Hazardous Substances (RoHS) and Waste Electrical and Electronic Equipment (WEEE), VIA implemented internal regulations that ensured the smooth transition for the development of alternative RoHS compliant products. The "RoHS" logo can be seen on all compliant product webpages. In addition, VIA received the prestigious Certificate of Green Partner from the Sony Corporation, in recognition of the successful establishment of an environmental management system that meets the stringent requirements of the Sony Green Partner Program.

# VIA Carbon Free Computing

## Breathe Easier

Individuals, organizations and governments the world over are starting to recognize the importance of reducing their "carbon footprint" - their impact on the environment measured by the amount of greenhouse gases generated by their activities. VIA is at the forefront of this new era of carbon consciousness, introducing a set of programs and products designed to offset harmful carbon emissions, enhance the environment and give back to the community.



In 2006, VIA launched the world's first Carbon Free Processor, the VIA C7®-D. Highly power efficient, with a maximum design power consumption of just 20 watts at 2.0GHz, the VIA C7-D desktop processor is based on the advanced VIA CoolStream™ architecture and supports the power saving DDR2 memory and all major operating systems.

Additionally, the first of a range of VIA Carbon Free PC systems was unveiled in early 2007, a sleek, compact desktop system featuring a power efficient VIA C7 processor platform, extensive connectivity options and a rich feature set for all today's key applications. An aggressive roadmap aims to extend the benefits of environment-focused computing further into both emerging and developed markets, and VIA has established certification and logo programs covering processors, components, and full PC systems to ensure easy identification.



## Carbon Offset

VIA Carbon Free products not only reduce the amount of carbon produced through the generation of less electricity for their operation, but carbon emissions are fully offset through a number of projects to ensure that the product's operation is completely carbon neutral.

VIA has worked with independent environmental agencies to calculate the electricity used by a PC over three years, based upon which carbon dioxide (CO<sub>2</sub>) emissions from the burning of fossil fuel can be calculated and thus a monetary amount per product assigned. VIA is working with qualified regional organizations to offset that amount of CO<sub>2</sub> through eco-friendly projects such as:

- **Reforestation**  
Planting trees in different areas around the world, since trees absorb (sequester) known amounts of CO<sub>2</sub> as part of their metabolism, and provide natural habitats
- **Clean Energy**  
Promoting renewable clean energy sources such as solar and wind power, reducing the requirement for fossil fuel power plants and reducing the burden on existing power infrastructures
- **Environment Conservation**  
Preserving natural habitats such as wetlands, a major absorber of atmospheric carbon, and recycling of components

VIA Carbon Free Computing offset programs provide an innovative and flexible approach to enable computing the world over to be efficient, clean, responsible and technologically progressive. With several projects targeted to the region where the products are sold, they give back to the global community on a local level.

### VIA Quiet Computing

Studies have shown that background noise in the workplace, often produced by the cooling fans in PCs, have a detrimental effect on performance and productivity. VIA's power efficient processor platforms target the issue of PC noise at the source, requiring only minimal cooling and enabling fanless passive cooling, resulting in silent systems with no moving parts.

Since 2001, VIA has taken a proactive role in helping to educate organizations on the importance of quiet computing, and, through its highly efficient processor platforms, is enabling manufacturers to create low-noise or silent devices. By maintaining relations with leading international PC noise experts, conducting independent noise testing in accordance with ISO standards and launching quiet computing projects aimed at educating the market about the tangible benefits of reducing PC noise, VIA has established itself as a world leader in this field, and continues to innovate at the platform level to minimize system noise.



# VIA Solar Computing

## Powering PCs with the Sun

VIA Solar Computing harnesses the power of the sun to provide clean, sustainable computing and connectivity for rural and remote communities as well as urban environments. VIA has pioneered energy efficiency at the silicon, platform and system level; now it is leading the way in developing complete solar powered applications for those technologies.

As governments and NGOs increasingly look towards alternate energy sources to power communication and connectivity in emerging markets where electricity supply is either not available or unreliable, many organizations have found that the amount of power consumed during normal PC use is too great to enable operation through alternate energy sources. VIA is taking a leadership role in seeking to overcome the challenges of power infrastructure deficiencies, and to define clean energy solutions for developed urban markets.

As a clean energy that can be harnessed to provide reliable, sustainable power, solar naturally complements VIA's power efficient silicon, platform and system technologies in promoting environment-conscious computing. Combining advanced, cost-effective solar panel technology from leading solar product innovators with VIA processor platform systems, VIA Solar Computing comprises complete solar-powered computing solutions that are less polluting, more affordable, more reliable and more flexible for a wide variety of new markets, applications and environments.

### Advantages of Solar Power for Computing

VIA Solar Computing focuses on photovoltaic (PV) solar power to take advantage of the numerous benefits for both emerging market and urban computing installations:

- Solar power is a clean, non-polluting energy
- Solar panels are silent in operation; ideal for classrooms, shops or evening operations, where a noisy generator would be disruptive
- Solar power is effectively free energy once the capital cost has been covered
- Solar panels do not require refueling: they are self-sufficient
- Solar panels have no moving parts so are highly reliable and virtually maintenance free, some requiring only an annual battery water change, and usually offer a warranty of around 20 years
- Solar power is getting cheaper: rapid growth in solar cell production and the development of more efficient technologies means the average retail cost has dropped from US\$27 to US\$4 per watt between 1982 and 2005

As R&D, production and popularity continue to grow, costs will continue to decline, and many governments are becoming more aware of its benefits and offer tax and rebate incentives to promote this clean energy.

## Samoa VIA pc-1 Information Community Center

VIA unveiled the first solar-powered ICT community center on the South Pacific island of Samoa in August 2006. Comprising three VIA pc-1 PCs, a server and a fax/printer/copier, the VIA pc-1 Information Community Center is the first ever to be completely powered by solar panels in the South Pacific, and has brought global connectivity to the multiple communities in the remote town of Ulutogia.

This project highlighted the synergy solar power brings to connectivity and development objectives, as a natural candidate for supplying clean, cost effective and sustainable power to emerging markets. By making implementations self-sufficient, VIA Solar Computing enables ICT access in rural and remote communities with little or no electricity infrastructure.





## VIA Energy Efficient Computing

VIA processor platforms are driving a new era in environmentally conscious computing, combining ultra low power consumption and cool operation with uncompromising performance, and consistently setting the standards in power efficiency and performance per watt for the PC industry.



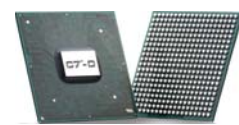
Since the introduction of the first VIA low power processor in 2001, VIA has led the industry in the development of energy efficient x86 platforms to enable a new generation of low power, small form factor computing devices. The fanless VIA Eden processor and the ultra power efficient VIA C7 family of processors, with an average power consumption of just 1 watt and unbeaten performance per watt, have extended VIA's leadership in this space, delivering uncompromised performance within an incredibly low thermal envelope. With the launch of the world's first carbon free processor in 2006, whereby carbon emissions are offset through environmental projects, VIA has redefined eco-friendly computing.

With ICTs accounting for 26% of energy use in office buildings, greater than the power used for all lighting, and office data centers for around 50% of the average business's power costs, electricity usage reduction is rapidly becoming a critical issue. But the benefits of energy efficiency extend far beyond money saved on bills. Nations around the world are struggling to keep up with their increasing demand for electricity, and especially in emerging markets, where fragile power supplies can be put under enormous strain as industries develop. By adopting energy efficient computing, organizations and individuals alike can reduce the burden on their local power infrastructure, allowing for the further expansion of ICT use.

### TreeMark™

To underscore the importance of energy efficiency as an environmental consideration, VIA has introduced a new benchmark, TreeMark™, intended as a useful tool for organizations looking to balance environmental impact in their computing purchase decisions. Validated by independent UK consulting firm, Best Foot Forward Ltd, TreeMark™ looks at the power consumed by a given computing product, calculates the CO<sub>2</sub> emissions generated by that product, and the number of trees required to remove that CO<sub>2</sub> from the atmosphere over three years. This easy to understand benchmark enables people to clearly understand the environmental impact of their computing solutions.

#### VIA C7®-D processor



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#### Leading Competitor Processor



With its market-leading power efficiency, the Carbon Free VIA C7®-D processor requires just four broad-leaf trees to compensate for the carbon dioxide that needs to be produced over the lifetime of the PC, an average of 22 trees fewer - or over 85% less - than competing desktop processors.

Energy efficient operation makes possible a new paradigm of clean computing with minimal impact on our environment. Power efficiency enables devices that are whisper quiet, carbon free and powered by clean energy sources, with enormous ramifications for commercial and personal computing everywhere.



For more information on the VIA Green Computing Initiative please visit: [www.via.com.tw](http://www.via.com.tw)

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